# approach

SEPTEMBER 1983 THE NAVAL AVIATION SAFETY REVIEW

Photo by LTJG Dan Ernst, VF-143

# Fiscal Finale Flail

AS you have probably noticed already, *APPROACH* is a lot lighter this month, and things inside are a bit cramped. This is due to what bureaucrats call "fiscal considerations." I think it's the same thing my wife calls "being overdrawn." Until FY '84, *APPROACH, MECH, FATHOM* and *NAVY LIFELINE* will be cut from 32 pages to 16. *WEEKLY SUMMARY* and *SHIP's SAFETY BULLETIN* will go out as messages, which means that many of the subscribers will not receive them. Hopefully, all this will not be a hazard to safety, although it can be seen as a symptom of a larger problem.

End of the year belt-tightening is nothing new to fleet squadrons. Two things seem to happen mid-September every year. First, the Ops officer announces that you flew yourselves out of flight hours *yesterday.* You knew this was coming, but the commitments came faster, and you had hoped your last minute request for more money would come through. But Christmas is only coming in December this year. The second thing that happens is that COMNAVSOMETHINGOROTHER tasks you to provide service hops for FLAILEX 12-83. "Service," of course, means that you pay the bill, and someone else gets the training.

By the time FLAILEX is over, there isn't enough money left to gas up the duty truck, much less an airplane. Looking at days of not flying, the training officer schedules daily, marathon ground training sessions. With help from all hands, the first few go pretty well. Everyone has a lecture in them, just waiting for a captive audience. But pretty soon, it comes down to the safety officer reading aloud out of the NATOPS manual. Dr. Mesmer himself could not have produced such a hypnotic effect: when the subjects wake up, they don't remember a thing. In the meantime, once sharp crews lose their edge.

Sure, the same thing happens in port, and during 50 percent leave periods. But those are well recognized as critical times, and we compensate for them. Besides, we don't have to add to the list when we can help it. Commitments will always be with us and so will the budget. That is as it should be. But the two have to be reconciled in order to "maintain an even strain" on crew training. Likewise, ground training is too important to be used as a time filler or a chance to get "checks in the box" when there is nothing better to do. Attention spans and time required to plan meaningful training must be taken into consideration.

Hopefully, *APPROACH* will be back to normal soon and so will everyone's flight schedules.

LT John Flynn
Editor

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# inside approach

Vol. 29 No. 3

Cover: H-46 painting by Blake Rader of the *APPROACH* staff.



## • FEATURES



## • DEPARTMENTS AND STORIES





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CAPT H. A. Petrich, Chief of Staff
CAPT S. P. Dunlap, Director, Aviation Safety Programs
CDR C. E. McCaskill, Head, Safety Publications
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# "Real Men Don't Wear Gloves"

By LCDR Bob McHale
VA-165



REMEMBER the first time you ever flew in a Navy jet back in the training command? A bit apprehensive to say the least, you probably had a heart rate off the scale and a high adrenaline warning light. Remember how you checked to make sure you had all the right equipment and that it was all on properly and attached to what it should be? Your torso harness was cinched down " 'til it hurt," and your G-suit — you even had trouble zipping up, it was so tight. When you climbed into, or rather "strapped on" that awesome flying machine, you made sure your harness was attached top and bottom and the lap straps wouldn't pull any tighter — you must have tried to get your butt farther back in that seat six or eight times, because you didn't want to be flailing around the cockpit during those negative "G's" and surely didn't want to be out of position if you had to "punch out." Gloves were on, sleeves were rolled down, and the *Velcro* strap was wrapped snugly around your wrist. Your mask was on nice and snug — maybe even tight, since you had to have oxygen at the altitudes you'd be flying. Finally you snapped the visor down and were ready for action.

You played by all the rules then. You figured if there wasn't a good reason for it there wouldn't be a rule, right? But time went by, and you made it through the RAG and into your fleet squadron. Now it's time to put all that training command stuff behind you and project that "cool" image. Gloves? Nobody who's anybody wears gloves. The sleeves of your flight suit are no longer seen below your forearms (you may make an exception during the winter, especially during preflight). Don't strap in too tight, it's too darned uncomfortable. And that oxygen mask, it was *designed* to hang by one strap on the side of the helmet.

Well, gents, *the rules haven't changed.* But more importantly, the *reasons* for those rules haven't changed. We see, hear and read about examples of such reasons on a routine basis, then promptly ignore them — "It can't happen to me," right? That is what I used to think. Well, it can happen and it did — and I may be slow, but you don't have to hit me over the head twice with an F-4 to get my attention.

It was one of those moonless nights with no horizon about 100 nm south of Hawaii. I'd been in the squadron about three months, and this was the second hop of my first cruise. Like any other "real" fleet JO, I was comfortably strapped in the seat, with my mask dangling off the left side of my helmet, my sleeves pushed up to just below the elbows and my gloves neatly tucked into my G-suit. We were the off-going tanker and had just completed tanking the last two F-4s. They were departing to starboard, while we continued in our port orbit.

Shortly thereafter, CATCC came up and gave us a right turn, setting us up to come back aboard. Now both of us in the cockpit knew the F-4s were out to our right, and I had sight of their lights. As I watched the lights get closer, I remember trying to figure out if they would pass above or below us as we came behind them — I was trying to judge relative position with no visual references. To make a long story short, we didn't pass behind them; we went through them. The hows, whys and lessons learned from that are a whole different story. The points I want to make pertain to events that occurred after the collision and the lessons I learned.

Things really happened quickly. There was a flash and a lot of flames from the left side of the cockpit, then an explosion. The pilot ejected without warning. Next came a loud roaring fire from the left. Before I had a chance to complete the thought "What the ____," the aircraft was in a fairly violent, erratic spin and thanks to my "comfortable" strap-in, I was up off the seat and out of reach of the lower handle. After trying unsuccessfully to pull myself back down into position with the lap belt, I began looking for the face curtain. It wasn't above my head where it should have been, and as I reached farther down behind me I found nothing. I decided to start from the other end and felt for the seat beginning about chest high. I found the face curtain high under my right armpit and yanked it as far forward as I could. I remember thinking that this was really going to hurt, but I was quickly running out of options. The next thing I knew, I was swinging in the chute. Before I had time to even begin to get organized, I was underwater. I inflated my LPA and came up right in the middle of all the shroud lines. As I grabbed for the Koch fittings to release them I discovered that my hands were badly burned. As much as I wanted to be rid of that chute, it was too painful to release the Koch's barehanded. I reached down to where I tucked my gloves into my G-suit and luckily they were still there. I managed to get them both on and then at least it was bearable to release the fittings. I found out that all that B.S. your buddies tell you about getting out of your Kochs in the water with gloves on is just that — B.S.! It's a poor excuse which has been latched onto and fortified by those who don't want to bother wearing gloves in the cockpit. Notice that those guys who use that excuse for not wearing their gloves around the boat, don't wear them ashore either. Since


that night, I have begun wearing my gloves all the time, and I have no problem "feeling" all the switches and knobs on the right side of the A6E TRAM. Incidently, when I go through periodic water survival training, I do it with my gloves on and still have no difficulties getting out of the chute.

Luckily, I had my clear visor down and my mask at least dangling from the left side of my helmet. That protected my face from the fire on that side. It's a good thing my oxygen switch was off, or it really would have been hot. Even with my visor down, however, I took quite a beating from wind blast after ejection.

Another lesson I learned was how to wear my flight suit, and what to wear under it. NOMEX will not burn, but it will char if it gets hot enough, and the skin under it will burn even if the NOMEX doesn't. I was wearing a short-sleeve cotton T-shirt under my flight suit, which was nice and comfortable in the Hawaii area. The fire was hot enough to char away the outboard side of my left sleeve. I received deep second degree burns on the back of my neck, on my thigh (except where the G-suit was) and from my fingertips to my left shoulder, right up to where the T-shirt sleeve was. That's right, the burns abruptly ended where my T-shirt began. I was impressed enough with the insulating qualities of even a thin cotton undergarment, that now I always wear a long-sleeve cotton flight-deck jersey under my flight suit, with sleeves rolled down and gloves on. This may be a bit uncomfortable around Hawaii and the South China Sea, but not nearly as uncomfortable as those six weeks I spent at Tripler Army Medical Center in Honolulu waiting for my burns to slowly heal.

So I encourage you to take a minute and reflect on how you used to prepare for a hop and how you do it now. Remember, when something happens to your airplane, it's too late to get yourself ready — you take what you have. Oh, I know, "It can't happen to me," right? Then why do you bother to arm your ejection seat when you fly? ◄

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# "Watch Out for Number One . . ."

By LCDR Paul H. Hederstrom
VA-52



. . . a phrase with which we have all grown up, and one which takes on new meaning to a squadron which just recently won the Safety "S."

Watch out for number one, as we all commonly understand it, refers to selfish concentration on one's own interests. This covers everything, not the least of which is our own safety and well being.

We, in the carrier aviation business, realize more than most that watching out for number one depends on mutually sharing responsibility for others. In no other occupation is it so important to watch out for others in order to watch out for number one. Whether individuals are adequately rested, eat properly, get regular exercise or have their personal affairs in order, are questions which must be answered by "me" to ensure that those individuals are performing at their peak and do not inadvertently include "me" as a mishap statistic.

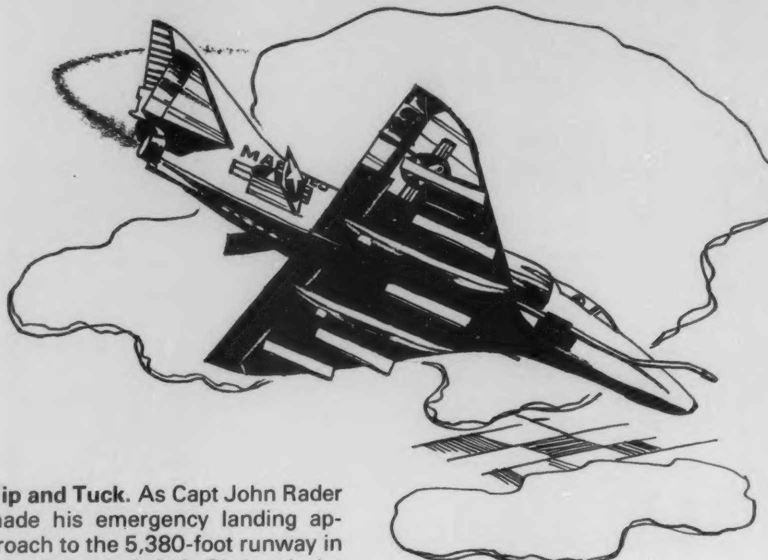
Watch out for number one also connotes to the Safety "S" winners that they are on top and have exerted major efforts to remain safe. This contains the most insidious danger of all, for within this attitude lies the potential for overconfidence, inattention to detail, and worst of all, complacency. Flying the most hours, dropping the most bombs, even winning the Battle "E" does not give a unit the license to relinquish safety as a priority. This is not football, baseball or soccer where momentum can prolong a winning streak. Safety maintains no momentum in and of itself, and takes no holidays. Look back at traffic statistics for July 4th, Labor Day weekends or even New Year's Eve. It is incumbent upon the Safety Officer to reemphasize all hands cooperation in the continuation of existing safety programs and revitalization of standard, yet proven, cliches.

A much healthier attitude for the Safety "S" winner, and one which projects pride and professionalism as well as the potential toward winning other awards, is that the other guys had better watch out for number one, because "we" have every intention of winning the "S" again next year. To keep the attitude alive in the command is everyone's responsibility. The Safety Officer's responsibility, in particular, is to furnish the avenues within which that attitude may be fostered and continued.

As an aside, but certainly appropriate when discussing the setting of attitudes, the impact of administrative and support personnel must not be underplayed. This is an often overlooked facet of safety, but extremely important when technicians must be able to fully concentrate on the task at hand. When pay records are in question, or supply cannot obtain the proper parts, then attitudes and concentration suffer, followed closely by performance. The Safety "S" winner must be aware that administrative and support functions have a very positive or very detrimental effect on a safety record.

For those commands which did not win the Safety "S" this year, watch out for number one, because you will be setting the trend one way or the other during this next evaluation cycle.

# AIR BREAKS



**Nip and Tuck.** As Capt John Rader made his emergency landing approach to the 5,380-foot runway in his oil-starved A-4 *Skyhawk*, he realized that his wingman, Capt Richard Barr, was depending on him to make a good landing and leave a clear runway as he was fuel critical also and no other runway was available. Capt Rader executed a flawless precautionary approach and landing, securing his engine as he cleared the runway. Both pilots call VMA-331 home.

This incident occurred on 31 May 1982 and began on a transoceanic formation flight of seven A-4 *Skyhawks* accompanied by a C-9 *Pathfinder*. While 250 miles at sea, Capt Rader observed a 20 percent oil remaining light in the cockpit. He immediately notified the flight leader and the *Pathfinder* of his problem and turned toward the nearest land as verified by the *Pathfinder*. At this time all oil pressure indications were normal and the 20 percent oil remaining light went out. Capt Rader could have made the assumption that the oil quantity sensing system was malfunctioning and proceeded with the flight. However, using good judgment, he elected to continue toward the nearest land until he could obtain more information about the situation.

In the meantime, Capt Barr had closed to a wing position on the stricken *Skyhawk* and reported large quantities of oil leaking from the port side of the A-4. Realizing that engine seizure would soon be a real concern, they reviewed NATOPS procedures and decided on the best course of action. With power set at 82 percent, the heavy A-4 was unable to maintain level flight. Rather than increase power, Capt Rader elected to dump fuel to reach a weight that could be sustained by the failing engine. At a point 100 miles from the nearest airfield, the oil pressure began to fluctuate. Twenty miles from touchdown, the oil pressure became very erratic, once even dropping to zero. Because he flew an excellent emergency approach and landing, Capt Rader left the runway clear for his fuel-critical wingman. Attaboys to both of these pilots.

**Sucking Air.** "Center, we are at 7,000 feet experiencing an electrical problem; we are cancelling IFR and landing at San Simeon." Little did the HAC, LCDR John Kistler, copilot LCDR Rob Blickle or crewman AW1 Doug Sharkey of HS-85 realize their SH-3D would soon experience a rare dual engine flameout.

One hour into an IFR flight and three miles off the Pacific Coast, the crew experienced extreme, uncommanded yaw kicks in ASE (automatic stabilization equipment). The crew secured yaw and then ASE in accordance with NATOPS. This did not correct the problem.

Shortly after this malfunction, smoke from the channel monitor panel and null box filled the cockpit. LCDR Kistler elected to cancel his flight plan and shoot a precautionary landing. Unable to determine the extent of the electrical problem, he secured both generators and battery in an attempt to stop the fire.

Passing through 4,000 feet, the battery was momentarily turned on to lower the landing gear. At approximately 1,500 feet, the No. 1 engine flamed out. The crew followed NATOPS procedures and set up for a single-engine, run-on landing with ASE off. Following a flawless landing, the No. 2 engine flamed out. Postflight inspection revealed the electrical problem was due to a short in the channel monitor panel.

The cause of the No. 1 engine flameout was a loose connection in the fuel line in the forward fuel tank. This allowed the engine driven fuel pump to suck air into the lines after AC power to the boost pumps was secured. Following No. 1's flameout, the crossfeed valve, which was closed, malfunctioned and allowed air to pass into the No. 2 engine causing its subsequent flameout.

Well done gang.


BRAVO ZULU

# What if . . . . . . . . . . . . .?

**By CDR J. K. Keresey**
**VAQ-132 ASO**

HOW many times have you played "What if . . . . . .?" in the readyroom while discussing the NATOPS emergency of the day? Or do you just review the same old emergency procedures as you've done a hundred times before? Possibly you're the kind of aviator who likes to dig in and imagine how you would *really* handle an emergency. The dictionary defines an emergency as "a sudden, urgent, usually unforeseen occurrence or occasion requiring immediate action." Using that criteria, most emergencies listed in Chapter 5 of NATOPS aren't emergencies at all. You can bet the ones that are don't come close to listing all the notes, cautions and warnings of every possible situation or environment. That's

why it's important to play "What if . . . . . .?"

As a *Prowler* pilot for the past six years, one of my favorite emergencies when playing "What if . . . . . .?" has been "What if we had a total electrical failure — and I mean total — in the EA-6B?" But wait a minute. That never happens. Why waste the time talking about something which has never happened and probably never will? That's why Grumman put RATs on these airplanes anyway.

Then one dark night in the Med, it happened. It had already been a different sort of day. Visibility was in excess of 20 miles, unusual for this area, and Mt. Etna was in the midst of one of her periodic eruptions, spewing volcanic ash up to 25,000 feet. We had just checked in with Marshal control about midnight, and were descending through 23,000 feet. I was about to tell the ship that we would be unable to make our push time when the lights went out. "Well, that's something new," I thought, but no sweat. That's why Grumman put RATs on these airplanes. I dutifully deployed the RAT and had my trusty ECMO No. 1 attempt to reset the generators. The lights and instruments flickered briefly and then went back out.

The next sensation was the sound of my ears popping as the canopy seal deflated, and the cockpit pressurization went to 23,000 feet. It was like a voice telling me, "You have a complete electrical failure — good luck, pal."

Dimly visible 100 nm to the west, underneath a pile of volcanic ash, were the lights of the Sicilian coastline. Somewhere out there was our divert field, NAS Sigonella, and also somewhere out there was the "Black Hole" of 11,000-foot Mt. Etna, the final resting place of numerous lost and confused aviators.

After making a gradual descent to 6,000 feet — and watching our standby gyro roll over and die after the NATOPS advertised three minutes — we made it to the coastline. Since we weren't sure exactly where we were, we headed north along the shoreline and tried to contact someone — anyone — on our PRC-90s. We looked for some landmark that would positively identify our position. A minute later that landmark appeared when we spotted the ghostly redness of lava flowing down the south side of Mt. Etna. That lava meant doom for several small Italian villages, but for us it was a beacon. From it we could pinpoint Catania and locate the isolated group of lights that had to be NAS Sigonella.

From left to right: LCDR Fred Adcock, LT Marc Troiani, CDR Jim Keresey and LT Doug Moore

Other factors complicated the emergency — factors I had never considered when playing "What if . . . . . .?" Deflation of the canopy seal not only dumped our pressurization, it significantly increased the cockpit noise level. Communication between myself and my right seater was almost impossible without diverting much of my attention away from simply staying in a wings-level attitude. The two ECMOs in the back, meanwhile, could only guess as to what had happened. I could only hope that they would trust my judgment and stick around. To add to the fun, the cockpit air conditioning system gradually went to full hot as we descended from altitude. The cockpit temperature was estimated to be in excess of 140 degrees and climbing. Although bearable, it significantly increased our desire to get on the deck ASAP.

But such was not to be. First, we had to let Sigonella know there was a deaf, dumb and invisible aircraft flying around overhead with a bona fide emergency. Since we were on the last event of the night, we were heavy on gas with no way to dump it. All we could do was orbit overhead and estimate when we were down to a permissible landing weight.

After several low passes over the runway, red twirlies began to appear about midfield — lots of red twirlies. The next big hurdle was getting our gear down. Since there was no way to lower our flaps and slats, we couldn't slow the aircraft to the NATOPS advertised limit for blowing down the gear — 150 knots — without stalling the aircraft. We had to hope that 170 knots would work just as well. (I mean, don't they build a 10 percent slop factor into those numbers anyway?) On top of that, the aircraft was trimmed for 320 knots when the lights went out. I was just a little concerned if I would have the back stick necessary — much less the muscle power — to get the airplane on speed for a no flaps/no slats approach.

The moment of truth had arrived. The cockpit temperature had just about reached my favorite sauna temperature, and the fuel state was estimated to be about the max the E-28 arresting gear could handle on a short field arrestment for the EA-6B. After one more low pass, a slow climb was initiated to bleed off airspeed, and the gear was blown at 170 knots. An unmistakable "thunk — thunk" told us that the gear had at least come out of the wells. With no position indicators, all we could do was hope that all were down and locked. A turn was made downwind and eventually we set up for an estimated three mile straight-in approach. Since we weren't sure the nose gear was down and locked, a firm touchdown was made at about 165 knots to hopefully lock it into position. We also minimized our speed in case we had to use the brakes to stop. The firm tug on my shoulder straps five seconds later told me we wouldn't need them.

So after all the "well-dones," the handshakes and the attaboys are over, what did we learn from this emergency that supposedly could *never* happen?

**1. Never say never.** Your aircraft may have gone 400,000 hours without a particular emergency, but I guarantee you if there is anyway something can go wrong, it eventually will.

**2. Playing "What if . . . . . .?"** when briefing emergency procedures can pay handsome dividends. If you haven't actually thought through an emergency procedure, but just memorized it by rote, you could be in for many surprises when the real thing takes place.

# Switches That Bite in the Night

By LCDR Rick Carlson
VR-24

IT has probably come to more than a few experienced pilots' attention that there is a wealth of destructive capacity at their fingertips in any cockpit. How many of us, in our in-flight reveries, have ever fancied the horror of impulsively reaching out to switch off the mags in our propellor-driven craft or to close the fuel shutoff valves in our jet? Are there no F-14, A-7 or T-2 jocks who, while sitting in their ejection seats, have pondered the awesome capability to instantly turn tranquility into maelstrom by simply tugging at a yellow handle nestled between their legs? The shiver of dread which hopefully accompanies such bizarre thoughts is welcome evidence that we haven't completely taken leave of our senses through these fantasies. Rather, we are intrigued by the potential for danger or destruction, and by our ability to frighten ourselves. Witness the resurgence in popularity of horror movies if you believe this part of our psyche isn't widespread.

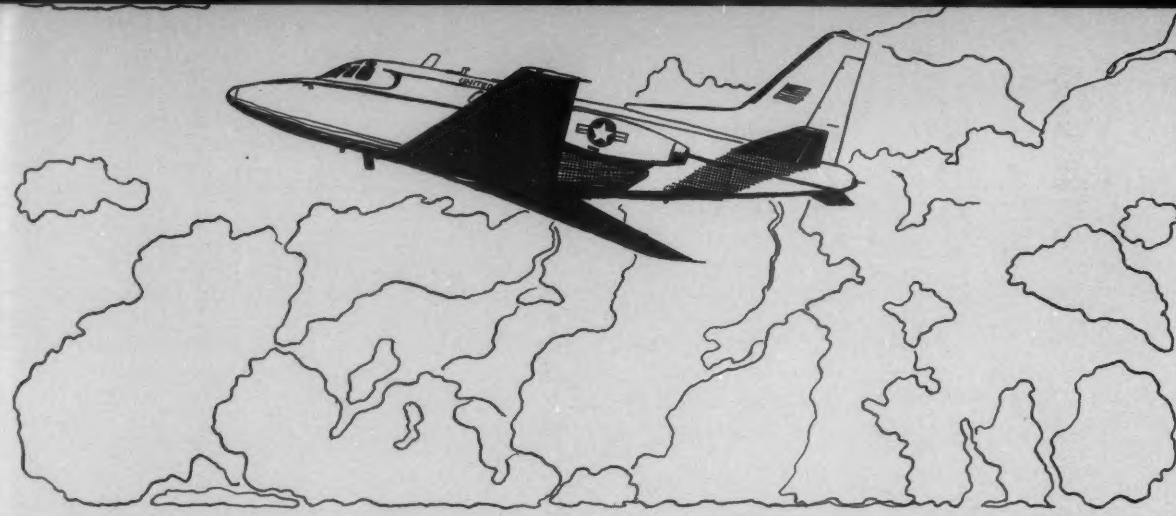
Okay, so we acknowledge that there are a variety of means available in the cockpit that enable us to make our flight both memorable and unpleasant. We also concede that we're not apt to employ any of them under normal conditions — at least, not intentionally.

It's easy to conceive though, with the hundreds of thousands of aircraft movements per year, that someone out there is probably nudging, knocking, bumping or flicking a switch, knob or lever that he had never intended to touch. It could be the darting hand reaching to catch a falling cup of coffee, or a billowing shirt or flight suit sleeve ready to pluck at whatever comes within range. Perhaps it is nothing more than the fellow who just loves his flying fingers, eager to demonstrate how adept he is at cockpit choreography. Some people equate that with flying skill.

Classic examples of inadvertency are certainly most likely to occur at night. In the daytime, most of us follow the paths our hands travel. At night, when the hand is practically invisible, why bother? And if the switch to be touched isn't lit, well, there's just no point in diverting your attention from the flight instruments. Unless, of course, the wrong one is chosen.

Other stories come to mind — tales of live ordnance raining down over a farmer's field, drop tanks mysteriously becoming detached in flight, magnesium flares rudely awakening a sleeping community. Assuredly, many of these episodes have been attributed to "stray trons," but that rationale won't work all the time. Another causal factor might be "stray appendages." These incidents should be convincing evidence of the lethal power of a few innocent-looking protrusions in the cockpit. Some of us, more stubborn than others, have to learn through the school of hard knocks. That is, we must suffer some harrowing experience in order to become believers.

My most recent experience came on a night T-39 flight; my eyes were opened wide to the life-threatening possibilities resulting from just one instant of clumsiness. My copilot was the unfortunate perpetrator in this particular case, but I, for one, have knocked over many a glass while reaching for something else on a crowded table. We had only been airborne for 10 minutes on this last leg of what had been a long day. With our planeload of seven passengers, we had watched the sun set on climbout and were just settling down for the short half hour remaining to homebase. As we were leveling at FL 250, my flying partner, at the controls in the



left seat, adjusted the thrust levers one more time and as an afterthought, reached for the friction knob on the left side of the center pedestal. As his right hand passed over the center of the pedestal, his pinkie slipped under an inverted U-shaped piece of metal guarding over the No. 1 starter button.

The engagement of the button itself was no more than a second, the time it takes for reflex to take over and pull the hand away. The stimulus for that reflex was not just the feel of the starter button on the finger, but more likely, the simultaneous awakening of the caution light panel and flight instrument lights that became almost impossibly bright. One second of an invasion of inputs to the senses, the next second, instant normalcy; a questioning exclamation from me — a sheepish but quick admission from him. The button had disengaged immediately, evidenced by the red light in the button itself going out when released. All was as it had been before — normal, or so it seemed.*

I called Center with a level-off report, made a comment that we should troubleshoot the starter system upon our return to check for any damage and settled back down to relax. Less than a minute later, as I was asking myself what that noise was that sounded like an inverter winding down, the crewman came forward to report that the passenger lights were going dim. My eyes went for the gauges on the electrical panel as the copilot started to mention something about no trim. Damn, why hadn't I thought to look sooner? Voltage was half of normal; one generator was apparently off the line and the other not responding well. And where were the caution lights? The panel had remained blank except for that wild instant.

As I busied myself isolating power sources, attempting resets, taking readings, the electrical system continued to die a slow death. The unfamiliar scenario created a feeling of helplessness. I knew that NATOPS wouldn't address this particular problem; it just came down to knowledge of the system, and I had no idea of what more I could do to stop the decay of power. After trying all combinations of batteries and generators, I went through the futile motions of downloading and squawking emergency. By this time, the avionics were showing no signs of life. As the inverters continued to wind down, red "off" flags started accumulating among the flight instruments while the panel lights faded to nothing. Flashlights were pulled out to keep company with the lonely beam emanating from the emergency attitude gyro.

Fate wasn't totally unkind to us though. Had our mishap occurred on a typical long leg, flying over clouds obscuring unfamiliar terrain, I could perceive a different article written by another author, one who would wonder why an aircraft would suddenly disappear from radar and crash into a mountain or disappear at sea. As it was, we were 15 minutes from overhead homeplate, with clear skies, a calm wind and a beautiful moon to light the way. As an added bonus, a stuck bleed air valve failed to close with loss of power and kept our cabin pressurized. Even with all this going for us, though, I knew we had our hands full — no electrons and no hydraulics either. Our sophisticated aircraft now had all the capabilities of a J-3 Cub.

Finding the airfield was no problem, I was particularly gratified to see the red beacons of the crash trucks lining the taxiways. We were expected! Having already discussed our plan of attack, we descended toward pattern altitude and went through all the checklist items that applied. The gear was lowered using the manual cable release and locked into place (we hoped) by yawing the aircraft substantially in order to put a side load on the wheels. A low pass was flown over the runway to alert everyone of our presence; fortunately, we were at least heard but never seen. After a climbing turn and a long downwind, the pilot set up for an extended final. As I called out airspeed, altitude and sink rate, he flew an exceptionally nice no-trim, no-flap approach and landing. With engines secured on touchdown, judicious use of emergency braking and a prayer of thanks that the gear had held, we rolled to a stop 6,000 feet later on centerline. My flying partner, I felt, had fully compensated for his earlier errant finger. And we both had learned the hard way just how damaging an innocent stray hand can be.

Ever since that incident, I have likened all those toggles, knobs, handles and levers in the close confines of a cockpit to snakes lying await in a pit. One stray, jerky or unprogrammed move of the hand could cause one of them to strike out and bite. And there are a select few of them that are poisonous.

* Pressing the start button with two engines running in flight produced an abnormal chain-of-events. By energizing the starter circuitry, two 24-volt batteries that normally operate in parallel were placed in series to drive the starter. The 48 volts (2 x 24) sharply accelerated not one but both 30-volt starter-generators through a series of closed relays and a common bus. The sharp spike in voltage and current burnt out both generators, leaving two instantly weakened batteries to meet the load demands. Even a quick download may not have been enough to salvage essential systems. Why none of the warning lights remained illuminated is unknown. Considering it was dusk though, and with the caution lights already dimmed by turning on the flight instrument lights, it's possible the lower voltage further reduced the light intensity, making them virtually unnoticeable in other than pitch dark conditions.

# Wet runway, *take the gear!*

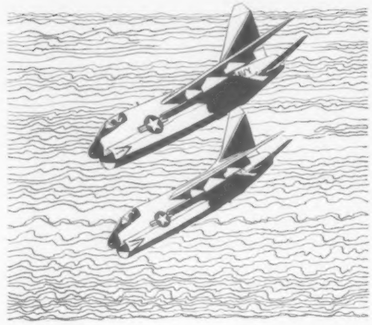
By R. A. Eldridge
*APPROACH,* Writer

LANDING a high-performance jet on a wet runway is not something which may be categorized as "a piece of cake." Many squadron SOPs dictate that pilots *will* take the gear when such conditions exist. Even if it's not SOP, most safety-minded pilots will opt to make an arrested landing rather than chance running off the end of the runway or becoming an unwilling passenger for a ride through the "Toolies."

A two-plane section of A-7s was on a cross-country flight. The leader was flying wing to give the less experienced pilot some experience in leading a flight. Prior to takeoff they had received a thorough weather briefing and were aware of the possibility of thunderstorms at their first en route stop. The leader's preflight brief had included a discussion of divert fields, en route weather checks, emergencies and wet runway landings/operations. Before they arrived at their destination, the leader took over the flight lead because the wingman was having communications difficulty.

Upon arrival at their destination, the reported weather was 2,500 feet with rain showers and scattered thunderstorms. The lead advised Center that they wanted a straight-in approach and that the wingman would be dropped off to land first. The tower advised that the last A-7 to land had reported fair braking with occasional poor spots. When the leader told the wingman that he should be prepared to take it around, the wingman declared that he desired to trap. Subsequently he made a successful engagement.

The leader was advised that it would take about 10 minutes to reset the gear. He asked if he should remain VFR until the gear was reset and was instructed to return to Approach Control. As he raised his gear and started to accelerate, the tower advised that he could land on another runway. Initially, the leader said that he would wait until the gear was reset. He had sufficient fuel and



if for some reason the runway didn't clear, he was prepared to divert. However, at the last minute he reconsidered and decided to accept an approach to the alternate runway which was nearly 8,000 feet long with arresting gear at the rollout end. He thought to himself: "I've checked the approach plate and confirmed the figures. I'll try it and if it doesn't feel right, I'll take it around." He informed the tower that he would make a normal landing without trapping, but if the braking was poor, he would take it around and then trap.

On his approach, the pilot thought he had touched down right on the numbers, but it was later confirmed that the aircraft had touched down *nearly 600 feet short of the hard surface.* The arresting hook was up at touchdown. To the tower operators the landing rollout seemed normal, and the A-7 appeared to be decelerating adequately. The pilot had selected anti-skid, and he felt that it was working properly during the braking phase. At 4,000 feet remaining, the aircraft had slowed to 75 to 80 knots. As he passed the 3,000-feet remaining marker, the pilot felt confident that he would not need to take the gear. Immediately thereafter, the aircraft hit standing water, and braking action ceased; the A-7 began fishtailing and the pilot lowered the tailhook. After two fishtails, the aircraft developed a violent right skid and headed for the right side of the runway. When he was certain the aircraft was going to leave the runway, the pilot shut down the engine. As the port main gear left the runway it sank into the mud, the port wingtip dug into the ground and the aircraft rolled left coming to rest inverted. The pilot exited the aircraft through the broken canopy and was uninjured.

At the time of the mishap, the weather conditions were: 2,800 feet overcast, four miles visibility, light thundershowers, wind calm with thunderstorms in all quadrants. Although the leader had briefed wet runway landing conditions, he failed to direct his wingman to trap. However, the wingman followed the briefed instructions and made an arrested landing.

The A-7 is easily controllable immediately after landing due to the effectiveness of the control surfaces. However, in the slow regime (below 80 knots) a more serious danger exists as a go-around is no longer an option once a skid develops. If a go-around is attempted, the added thrust accentuates the skid and increases the possibility of departing the runway.

In a later statement, the pilot was unable to explain satisfactorily what made him decide to land on a short, wet runway. He knew it was difficult to stop under the existing conditions. In retrospect, he felt it was a combination of a taxing approach and worrying about an inexperienced wingman who was having difficulties in less than optimum conditions. As he concluded, "Deviation from my original plan of action was costly."

The lesson to be learned from this mishap is adequately summed up in the first paragraph of the A-7 NATOPS under the heading WET OR ICY RUNWAY LANDING: "Whenever wet or icy runway landing conditions are encountered, and conditions warrant, every effort should be made to effect a short-field arrested landing. Care should be taken to ensure that a go-around is possible in the event of a hook skip."

# Feast or Famine

By LCDR Robert L. Payne, Jr.

AFTER all, I've got almost 2,000 hours in these aircraft. (Something's not right.) Wait, I've got over 200 hours just in this helo! Yup. We've been through a lot together. (We shouldn't be settling — why is the noise level changing?) This is a detachment helo — one of the finest you'll find! (I can't believe it — a load on and an engine at ground idle? It won't fly like this! Maybe it's the gauges? Maybe that's why we're settling into these other loads on the deck?!) I've got some *time* in this aircraft — not only flying it — I've watched the crew change the rotor heads — the blades are trimmed to perfection; I've even helped wash the old buzzard! (I have to *do* something — *now!* OK — turns are 88 percent going down — Take control of the aircraft.)

"I've got it!" (Do I really? Or has it got me?) I need power and turns — too much chatter on ICS/UHF/VHF — I can't even hear myself call for load release. (I still don't believe it, but there it is — No. 2 has just let me down.) The Engine Condition Lever is in "fly." Why? No. 1 is at topping power. I've got to get clear of the flight deck. No room to land! OK — Rotor RPM has stabilized — load has been released. (These crewmen are *great!*) I milk the collective — it's a fine line of lift versus drag. (I almost failed that class!) In our case altitude versus "turns." I've got emergency throttle armed — should I use it? No — RPM is stable — worry about missing the loads and then the deck edge nets. We've got to get some airspeed. (My crew seems to be responding faster than I can perceive.) We clear the nets — I push the nose over. (I've practiced it a thousand times. It's worked before, but somehow knowing it's not a self-induced failure makes it all seem unreal.) Ground effect — freeze the collective — a little right yaw. "Fuel dumps on." (That's me? The training is coming back — it *does* work!)

"OK — we've got an engine failure — let me know when you're all ready for possible water entry." (Now where in *** is the carrier? I'll never get it back to homeplate on one engine — deck is prestaged for the day's VERTREP evolution.) The crew reports ready! (Faster than I expected — they are *really* fast!) Copilot has completed the single-engine checklist — APP is started and switched over. Airspeed is coming on — I note No. 1 at topping power, No. 2 still at ground idle — maybe the ECA has failed — try beeping up emergency throttle on No. 2 — nothing — no change — I've got 65 knots, still 88 percent rotor RPM, I turn towards the carrier. "Yankee Three Bravo — Hotel Whiskey Fourteen has one engine out requesting immediate landing." "Roger — cleared immediate spot three — uhh — make that green deck on the fantail." (I think for the first time we might make it!)

What the #%&*@! Suddenly we got power — I mean *lots* of power — turns! Too much? RPM goes over 104 percent — pull collective — that engine is back on the line! "Reset No. 1 engine emergency throttle." (I've heard too many stories of eager pilots inadvertently burning up the good engine — besides I sure don't need RPM at the moment.) I roll rotors level with a bead on the carrier about one mile off. We're climbing like bandits — maybe I should pull the ECA circuit breaker? Too late! No. 2 is back to ground idle! Rotor RPM has dropped to 94 percent — I drop collective a little until I see we are stable again and now at least we have airspeed and a little altitude. (Brother, was that fast! Feast or famine! One extreme to the next — come on baby! We're almost there!)

"Hotel Whiskey Fourteen — abeam — fixed gear — four souls onboard." Did he answer? Don't remember. No. 2 is back on again! RPM not too high this time. Turning final, I call for the landing checklist. (I can't believe how calm my crew is!) Copilot goes through every item carefully — reminds me fuel dumps are still on. "Landing check complete, call for fuel dumps." "Roger — secure dumps." (We went from a full bag of fuel to about 500 pounds each side in this short period of time.) "Dump secured." Our landing is uneventful — a no-hover, low-power required landing. As we complete the shutdown checklist, I can't believe what has just transpired! I've got an LSE trying to signal me to fold it up and the crew scrambling to get blade tiedowns. I get out on shaky legs — pat my crew on the back — what a job they did! We done good! Did emergency procedures work? Yup. Did it pay to practice it time and again? Yup. (I've got too many hours in this thing — it wouldn't *dare* quit on me! Would it?)

Yup.

# Know Thy Aircraft

By LT Bert G. Outlaw
HS-5

THE inside back cover of the October 1982 issue of *APPROACH* has some statistics for helicopter pilots. It shows that one of the greatest causes of helicopter mishaps is **inadequate flight preparation.**

According to these statistics, the greatest causes of helicopter mishaps are things that could have been planned and prepared for long before leaving the ground. Included in this sort of preflight preparation are NATOPS performance charts for one engine inoperative (OEI) for your particular aircraft and mental preparation of "what ifs" during the flight.

One of the most critical evolutions in a CV helicopter takeoff occurs when the cyclic is pushed forward and the aircraft crosses the deck edge. Unfortunately, this critical portion of the flight is usually given minimal coverage, if covered at all, during the brief.

In the civilian world, the FAA requires Category A transport helicopters to fly a special flight profile (based on gross weight and ambient conditions) which allows the aircraft to return for landing or continue flight based on a CDP (critical decision point). The pilot knows, before he ever pulls collective, that prior to CDP he will perform a certain action and after CDP he will be able to continue flight OEI. A typical Category A takeoff/landing profile is contained in Fig. 1.

Military aircraft can't be flown exactly along these same profiles because civilian aircraft have the pitot-static sources mounted on top of the mast, above the rotor disk, while the source for pitot-static systems on military helicopters is mounted below the rotor disk where large errors are introduced below 40 KIAS. Additionally, civilian aircraft take off from stable platforms vice moving ships. However, to optimize the odds of successfully coping with an engine failure when slow and crossing a deck edge in a military helicopter, military pilots must consider and utilize all available data and information.

A starting point could be your trusty NATOPS and your OEI height velocity diagram (Fig. 2). It is said that if a pilot is an exceptional aviator, he can operate inside the envelope and still successfully recover from any single-engine failure. Conversely, if the aircraft is being operated outside the envelope and the aviator breaks the aircraft, he is considered a plumber who couldn't hack it. Neither of these hypotheses are necessarily true.

What goes into making a height velocity diagram?

Most HV diagrams are based on a standard day at sea

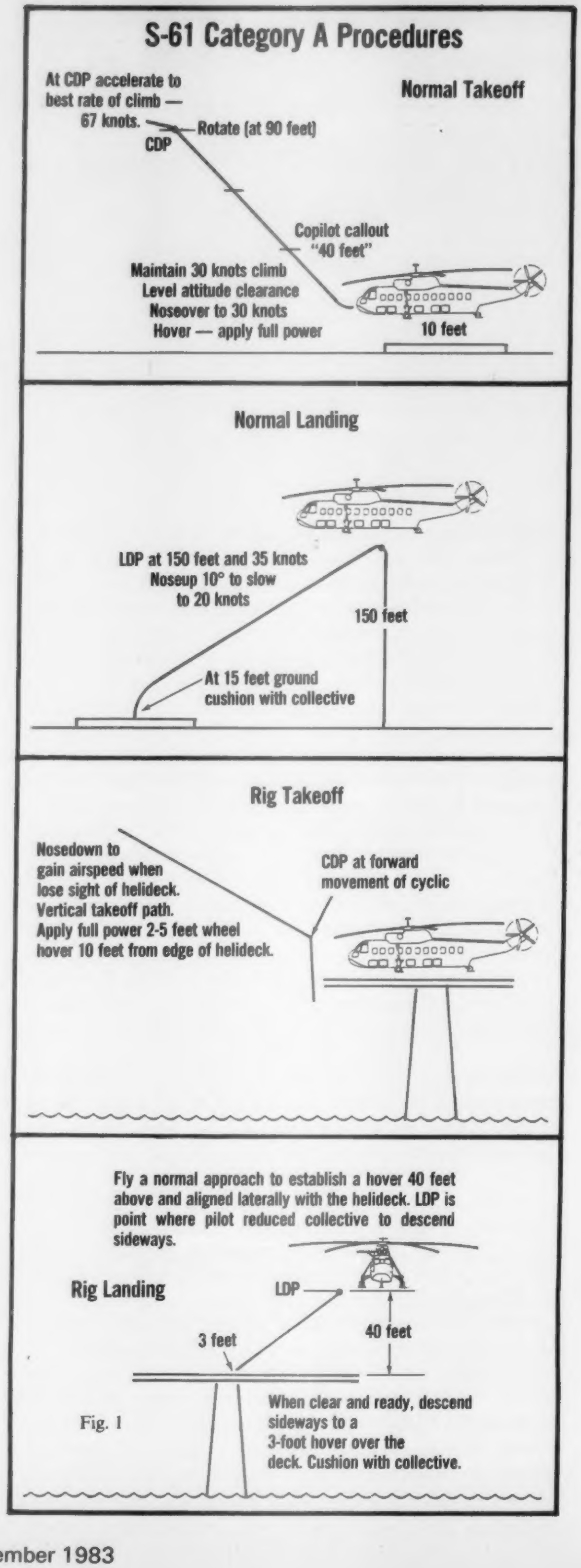
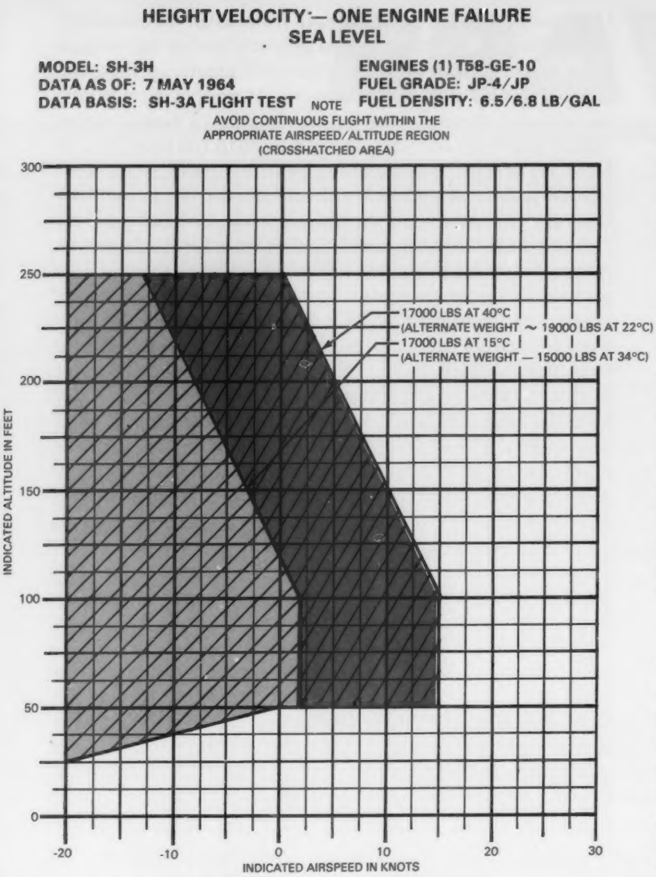


Fig. 1




**Height Velocity Diagram — One-Engine Failure Chart**

Fig. 2

level. The envelope must be expanded in proportion to increasing density altitude and aircraft parameters. Diagrams are plotted for a steady state constant airspeed and constant altitude. They are not applicable to climbing flight. Engine failure while climbing will cause an even greater and more rapid decay of $N_r$ and decreases the probability of recovering the aircraft safely. The original HV diagram for any new aircraft model is done by company test pilots in new aircraft with finely tuned engines; not in a 20-year-old relic with a first-tour pilot at the controls.

The initial HV diagram testing of simulated single-engine failure on multi-engine aircraft is done with a one-second delay before any pilot action is initiated. On single-engine aircraft, a two-second delay is used.

The curve is developed by simulating actual engine failure through retarding the throttle, rather than actually shutting down the engine. Measurements have shown there is a significant amount of engine output torque with normal engine rigging at flight idle position.

The deciding factor in the development of the HV diagram is the pilot's subjective opinion of his ability to make a safe landing after engine failure at the next test point. This is not necessarily the same as a safe single-engine waveoff which should be the determining factor when operating at sea. As can be seen, there is not much of a safety factor built into the height velocity diagram. SH-3D/A NATOPS HV diagrams are invalid because the charts were generated with an SH-3A aircraft with no ice shield installed. Installed ice shields reduce power available three to five percent depending upon airspeed.

Another chart which should be looked at during preflight preparation concerns the ability to maintain level flight with one engine out. From this chart it is possible to obtain a $V_{min}$ and $V_{max}$ which will give us the speed range within which level, single-engine flight should be attainable, based on 100 percent.

$V_{min}$ would be used to determine if acceleration is required in order to maintain level flight. How many degrees nose down are required to get the $V_{min}$ when the engine fails? Is that part of the preflight brief?

VMC recovery technique will differ from IMC recovery technique. VMC will provide several outside references and cues as to aircraft clearances from the ship, nose attitude, sink rate, sideslip, etc. IMC recovery must be completely made for inside the cockpit. Preflight performance planning, takeoff profile and crew coordination will determine if the aircraft is going to have to ditch or to continue flight.

Other questions to consider:

Did you climb vertically during your takeoff to allow the tail pylon to clear the ship as you push the nose over to attain $V_{min}$ while the ship continues to drive forward? To what altitude (day and night) are you going to descend before you are committed to ditching? Are you prepared to do this at night, completely on the gauges? Some of these figures and answers can be briefed in the readyroom rather than doing your own test program after it happens to you. If you have not thought and talked about these in the readyroom, it may be too late to save the aircraft and crew when the engine really fails.

## OTHER CONSIDERATIONS FOR OEI OPERATIONS IN THE SH-3D/H

- **Reduced $N_r$.** After engine failure, $N_r$ will have dropped to 92 to 94 percent which should make the rotor system more efficient due to the reduction in profile drag.
- **Ground effect.** Ground effect will become effective at low altitude and may be sufficient to keep the aircraft out of the water. How much is ground effect going to help? It varies from an approximate one-percent reduction in induced drag at 50-foot helicopter altitude to approximately a 24-percent reduction at 30 feet.

Because induced drag is predominant at low speeds, the reduction of induced drag due to ground effect will result in a significant reduction in thrust required.

- **Pitot-static errors.** Due to changes in upwash, downwash and tip vortices, there will be a change in position error of the pitot-static system associated with ground effect. In the majority of cases, ground effect will cause an increase in the local pressure at the static source and produce a lower indication of airspeed.
- **Sideslip.** Right and left sideslip increases rate of descent in an autorotation but also decreases climb performance. One ball-width at 90 KIAS represents about 10 degrees of sideslip. Sixty KIAS requires approximately 20 degrees to get the same ball deflection. At 30 KIAS full-ball deflection

represents over 45 degrees sideslip. Even a small amount of out-of-trim condition will decrease already marginal climb performance.

- **Turns.** Turns with OEI will require more power to maintain the same altitude. Turns using large angles of bank should be avoided during OEI operations due to large losses of lift. Turns should be kept at a minimum with shallow angles of bank when single-engine. Given the choice, right turns are preferred since less power is required to drive the tail rotor, resulting in more power available to the main rotor.
- **$V_{min}$.** Airspeed below which level flight cannot be maintained. Aircraft should be kept above this airspeed during approach. When decreasing airspeed below $V_{min}$, aircraft should be in a good position to land. The aircraft should be at an altitude to allow a 15-degree nose drop to attain $V_{min}$ after the engine fails (best case).
- **Full power.** Perhaps the established procedure should be changed to set full power prior to takeoff. If set at 104 percent $N_f/N_r$, it is true that when one engine fails the other engine will go to topping power automatically. However, the $N_r$ will bleed off faster than the engine can accelerate. It is easier to maintain an $N_r$ with speed selectors full forward than to let the $N_r$ drop and then try to accelerate the $N_r$ back up.
- **Single-engine climb performance.** H-3 NATOPS states that at 60 KIAS, with ice shield installed, a three to five percent reduction in military power available can be expected. It further states that this three to five percent reduction in military power will cause a 40 to 60 percent reduction in single-engine rate of climb. That is a rather large deterioration in single-engine and climb performance.

Is it acceptable? A night takeoff from a CV is extremely demanding. Better training and preparation for that engine coast-down at the most critical time will greatly increase the probability of a successful recovery. At present, fleet pilots, for obvious reasons, receive no training in single-engine failure at critical altitudes/airspeeds (80 to 100 feet, 20 to 30 KIAS). The simulated single-engine training which is accomplished is done at very safe altitude and airspeed combinations and always during the day to enhance visual cues.

Since the risk of using an aircraft to train for single-engine failures at critical altitudes/airspeeds is unacceptably high, perhaps a suitable alternative is to use the recently developed motion based trainer (MBT). The MBT may be the only place to actually practice what may save an aircraft and crew some dark night in the North Atlantic. Go to your MBT and practice at various gross weights, temperature, airspeed and altitude combinations. Find out what will work and what won't work. Fix some of those figures and answers in your mind relative to engine failure when high and slow. Determine how many degrees nose down it will take to get $V_{min}$. Investigate at the altitude at which you can flare and slow to 15 to 20 knots prior to entering the water. See how much more efficient the rotor is at 92 to 94 percent $N_r$ than 100 percent $N_r$. Discover what type of airspeed indication problems will occur below 40 KIAS. Find out what crew coordination problems will be encountered.

Professional pilots must plan and anticipate hazardous conditions. Something that can be done before leaving the deck should not be one of the leading causes of mishaps in the helicopter community. On your next brief, check your preflight planning for rust.

*Comments on H-3 APPROACH Article by LT Bert Outlaw By CDR Dave Fitch, Vertical Flight Dept., NAVAIRSYSCOM*

*At some time in their training, student helo pilots learn the "truth": Navy helo pilots are required to execute flight profiles, during which recovery from a single (or dual) engine failure is improbable. The challenge is to fly the mission, minimizing the time spent in "extremis." To do so requires knowing the NATOPS, thorough planning and crew coordination and thinking ahead of the machine. It is essential to be continuously aware of power required versus power available, and $V_{min}$. Unfortunately, the design of our airspeed indicating systems forces us to accept errors at low airspeeds where accuracy is very important. In general, pitot-static systems are not reliable below 40 knots, regardless of the position of the pitot tube. The amount of error increases as airspeed decreases. Newer technology systems are in development and test, but none are presently funded for USN retrofit. Have we done with too little, for too long?*

*Regarding the discussion of the H-3 HV diagram: It is an overstatement to say that the SH-3H diagram is "invalid." The diagram (like all HV diagrams) is intended as a guide to safer operations. Diagrams result from flight test, analysis, or in this case, a combination of SH-3A test and analysis of the effects of changes to the SH-3A to make an SH-3H. All HV charts are based upon assumptions, including: the proficiency of an "average aviator" and a standard reaction time (which may or may not be valid depending upon the flight tasks being managed at the time of engine failure). The diagram should not be thought of as a guarantee of safety, nor should it be used (by itself) as a yardstick of pilot performance following a mishap. In the case of the SH-3H diagram, a decision was made during the modification to SH-3H that changes in flying qualities did not justify the cost and risk of flight test. The SH-3A chart (supported by 10 years of flight experience) was amended to reflect the increased performance of the T58-GE-10 engine. Although the author is correct that the diagram does not reflect flight performance with ice shield installed, the difference (two to four knots more to achieve single-engine airspeed) is negligible.*

*Regarding single-engine climb performance: Two different configurations of ice shields are installed in USN H-3s. The SH-3D/H charts reflect performance with the shield which produces the highest installation losses. For information, rate of climb can vary from zero to 100 fpm depending on gross weight and environmental factors. It would be more valuable to think of rate of climb losses in terms of fpm, rather than in percent. A three percent loss equates to 70 fpm, while five percent is 120 fpm lost.*

# BRAVO ZULU

LCDR Floyd Weaver
LT Chuck Orbell
VAQ-33

WHEN operating single-engine, the A-3 is in an emergency situation. A single-engine approach in the *Whale* means uncoordinated flight, faster airspeeds and limited waveoff capability. Superior airmanship and crew coordination are required to successfully land the aircraft. Compound this situation with a utility hydraulic failure and midfield arresting gear and an A-3 crew has only one approach to fly the aircraft safely to the deck.

This VAQ-33 transit from NAS Key West to NAS Oceana quickly became a multiple emergency situation. Immediately upon gear retraction, the port engine lost thrust. Cockpit indications of fluctuating fuel flow and rapidly rising exhaust gas temperature (EGT) necessitated engine shutdown. During fuel dump and while burning down to landing weight, the navigator, LT Chuck Orbell, noticed the unmistakable whine of the utility hydraulic pumps signaling an impending hydraulic failure. LCDR Floyd Weaver now had one chance at a safe landing.

Squadron base operations was contacted, and the multiple emergency discussed. LCDR Weaver would have to use the emergency pneumatic system to blow down the landing gear and flaps. Using the one-time-only pneumatic system, no gear retraction would be available for increased waveoff capability. In addition, the pneumatic system offers full-flap selection only, while A-3 NATOPS recommends half-flap usage on a single-engine approach. NATOPS further warns, "a successful single-engine waveoff at slow airspeeds with landing gear and full flaps down is marginal and should not be attempted unless absolutely necessary." To further complicate the situation, the winds at NAS Key West dictated the use of a 7,000-foot runway with midfield arresting gear only. Thus, if the arresting gear was not engaged, the combination of minimal airspeed and remaining runway would make a go-around virtually impossible.

The squadron LSO was on station and discussed the approach with LCDR Weaver. As much of the runway as possible would be used and upon touchdown LCDR Weaver would deploy the drag chute, committing the aircraft to land. The ailing *Skywarrior* was vectored to a straight-in ASR approach. At five miles, the flaps were pneumatically lowered to FULL. Upon intercepting the glide slope at three miles, LCDR Weaver extended the landing gear and committed himself to one approach and one landing. LCDR Weaver flew a 4.0 single-engine approach, landing approximately 500 feet down the runway. He deployed the drag chute and aerodynamically braked the aircraft to a successful arrestment.

Postflight maintenance revealed a fuel control malfunction in the port engine and a ruptured hydraulic line in the port catapult hook area. LCDR Weaver and LT Orbell are commended for the expert manner in which this multiple and challenging emergency situation was successfully handled.

LT Chuck Orbell (left),
LCDR Floyd Weaver (right).

# A Failure to Communicate

By LT Earl Schreiber and LT Bill Throne
VF-154

FOR crying out loud! What seems to be the problem now? These 1950's technology *Phantoms* are a real pain in the neck! They have more peculiar emergencies! "Fighter rep!! What's going on with 112?" Jeez, they're getting younger every day. Is he qualified to stand the squadron tower flower watch?

"Utility hydraulic failure, sir. He'll need to blow down the gear and flaps. He'll probably want a straight-in, no big deal."

"One-twelve, tower. Max conserve, I'll Charlie you last." I guess he'll be OK for awhile. I wonder what blowing down the gear and flaps entails for a *Phantom?* I used to crank 'em down.

"Roger that boss, gimme a five minute heads up so I don't blow the flaps down too early."

What's the matter? Is he low on gas or what?

"Tower, Air Ops. What's the problem?"

"*Phantom 112* will recover last; he's got some flap problems."

"Roger, keep us informed down here, out."

"Excuse me, sir . . . ."

"Wait one, fighter rep. I've got the Skipper on the line . . . Yes, sir? No, sir. The recovery won't be delayed; I'm just holding the *Phantom* 'til last; he's coming in on a straight-in. I don't want to mess up the Case One pattern."

"Pardon me sir . . . ."

"Hang tight there, fighter rep. One-twelve, set up for a three mile straight-in."

"Roger, Boss, blowing the flaps down now."

"Lens set-all set F-4."

"Heads up on the flight deck, one to recover, F-4 at one mile."

"One-twelve, *Phantom* ball-half flaps-four point oh."

"Wave off, 12. What's the problem? Why are you at half flaps?"

"I'm not even at half flaps any more paddles: they just blew up. I have a utility hydraulic failure, we'll need 38 knots."

"Roger that 12. Extend off the 180 for a modified straight-in."

"Boss, we're going to need more wind over the deck."

"We've got plenty of wind, paddles. Thirty-two knots is fine for a *Phantom* utility failure . . . ."

Roger ball, OK, three wire. No sweat . . . .

Let's take a step back and look at the situation from *your* side of the fence. A peek inside the cockpit reveals the following:

"Well, we have a utility failure."

"Any other indications?"

"Nope that's it."

"All right, we'll tell Strike to arrange a straight-in for us. Hold the flaps 'til last so they don't blow back up. Strike, 112"

"One-twelve, Strike, go ahead."

"One-twelve, has a utility hydraulic failure, requesting a straight-in at the end of the recovery. We'll hold overhead 'til Charlie. We'll need 27 knots wind over the deck for a half flap approach." Take charge; let 'em know what you need.

"One-twelve, Strike, roger straight-in."

I hope they pass this to the Boss and Paddles. "OK, let's go through the checklists. Hold the flaps 'til the Boss clears us for the straight-in."

"One-twelve, tower. Set up for a three-mile straight-in."

"Roger, Boss, blowin' the flaps down now . . . ."

What can be learned from this typical CV scenario? Let's start with the "Tower Flower." Is the nugget you sent up there ready and able to provide the Boss with the obscure but important facts? In this case pneumatically lowered flaps in the F-4N (20 years old) tend to blow back up after about 10 minutes. What are half-up and no-flap wind over the deck requirements? (Twenty-seven knots and 38 knots respectively, quite a difference here.) Has the LSO been informed of the problem so there isn't a waveoff for some surprising configuration?

Did the Boss fully understand what the emergency was because of his F-4 experience, or is he still thinking about flying a Spad off a wooden deck?

Did the strike controller know what 27 knots wind over the deck meant — or for that matter what a utility hydraulic failure means? "Roger" can sometimes mean "Clarify."

Did the aircrew "Take charge"? Did they press the possible urgency of the emergency? Did they pass it to the LSO, or did they rely on the assumption that "greater men than I are running the boat"?

Finally, the LSO, mild-mannered and unassuming, is stranded all the way out there on the platform. He only has two UHF radios, a hot line, a phone, a 19 MC and a myriad of sound-powered circuits. He is the final controlling agency. Any emergency or anomaly needs to be passed to the LSO first and foremost. He is looking for standard procedures and is itching to document an error with the flashing red "training aids." In this case, his ignorance of the emergency and a twitch in his right index finger resulted in an increase in wind over the deck requirements by 11 knots.

Sound familiar? Probably. Simply insert your aircraft, one of your aircraft's quirks and a *failure to communicate.* A lot of mistakes were made here, along with some ill-conceived assumptions. In this example, all ended well, though the potential for disaster certainly existed (i.e., a no-flap *Phantom* arrestment six knots below published wind-over-deck requirements). Naval aviators are rarely at a loss for words, so use some of them when it counts. Paint the big picture. Communicate!

# A Modest Proposal

By LCDR Robert C. (Barney) Ruble

I have always maintained that there are a few things worse than an old LSO, and any practicing paddles who have ever tried to debrief one is sure to agree. When a guy finally hangs up the pickle, his skills fade quickly, but the memories linger on. There's a nostalgic tendency to consider oneself an LSO long after the last pass is controlled. I feel obliged to make these remarks at the outset because I am in fact an old LSO who finds himself trying to give some advice to those who are actively waving. I promise, however, that this is my last gasp because I know the skills are gone and my razor sharp recollections are rapidly degenerating into fanciful sea stories. Nevertheless, I would like to pass on an idea that might be of value; one which I tried as a CAG LSO and found useful.

We've heard a lot about windows of vulnerability in the past few years, and I discovered that LSOs have one of their own. The first few passes of each recovery are a weak spot in the program. The weakness is heightened if, due to the spot, the LSOs can't man the platform long before the first man calls the ball. During this period everyone is busy (especially the team leader) trying to set up radios, adjust the lens intensity and generally getting organized. There's some negotiating about who will control, who will write and who tells the jokes. If one or more team members arrive just as number one rolls into the groove, they are still probably trying to night adapt or just attempting to shift their thinking from their squadron jobs to waving. This is the time frame where concentration and coordination are weakest and the possibility for LSO error greatest. My solution for closing this window of vulnerability was to institute recovery briefings. We, as aviators, brief for flights; why not brief for recoveries as LSOs?

After some friendly persuasion, I convinced the air boss to donate a rain gear locker near the platform which we converted into an LSO briefing room. It held one team, several status boards, various pertinent pubs and our foul weather gear. Ten minutes before the scheduled Charlie time, the team would gather and the team leader would assign duties for that recovery, brief equipment status, known airborne emergencies, weather/deck conditions and maybe do a little training. What this did was get everyone thinking recovery and allowed for a much quicker and controlled setup once the team took the platform. I believe it closed our window of vulnerability. I recommend each carrier set aside a space, with telephone or 19MC, to be used for LSO briefing. I believe this procedure will prevent more than a few landing mishaps. One caution: After the first few line periods, the briefing process gets tedious — *CAG LSOs . . . Do not relent!* Insist the briefing be complete and the whole team be on time for each one. It gets everyone's mind set in the proper frame.

OK, that's it, I'm done. From now on it's sea stories in which the lows were lower, my saves were more fabulous and my arguments with belligerent squadron skippers all resulted in them slinking away in the face of my righteous wrath. I solemnly swear I won't argue with paddles. Finally, remember: Old LSOs never die, they just lose their pickle.


# Don't get burned up!

**Have your P.R. shop OK all personal gear carried in flight.**

Naval Safety Center
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Poster idea contributed by CDR L. J. Nevels, ASO, VP-47